

MAY 17 2000

New Costa Rican and Panamanian Species of *Miconia* (Melastomataceae: Miconieae)

by

Frank Almeda

Department of Botany, California Academy of Sciences
Golden Gate Park, San Francisco, California 94118

Diagnoses, descriptions, and illustrations are presented for seven new Mesoamerican species of *Miconia* (*M. colliculosa* and *M. talamancensis* from Costa Rica and Panama, *M. vestita* from Costa Rica, and *M. correae*, *M. crocata*, *M. jefensis*, and *M. morii* from Panama). Distinguishing characters, distribution maps, citations of representative specimens, and comparisons with probable relatives are provided for each species.

RESUMEN

Miconia, con mas de 1,000 especies descritas, es el género más grande en la región de la Flora Mesoamericana. Se describen siete especies nuevas de *Miconia* (*M. colliculosa* y *M. talamancensis* de Costa Rica y Panama; *M. vestita* de Costa Rica; y *M. correae*, *M. crocata*, *M. jefensis* y *M. morii* de Panama). Se proveen descripciones, ilustraciones, notas sobre distribución y fenología para todas las especies. Además se presentan discusiones sobre las afinidades entre las especies nuevas y mapas de distribución.

In the course of preparing a floristic treatment of the Melastomataceae for Flora Mesoamericana many new taxa have come to light. Several are from remote, little-collected regions while others are locally abundant at sites that have received repeated visits from collectors during the past two decades. Because work on this treatment has necessitated study of collections from well beyond the limits of the flora area, it has been possible to definitively identify new taxa and gain a better understanding of variation patterns in problematic species complexes over a broad geographic area. Of the 37 genera and approximately 500 species of melastomes presently recorded for the Mesoamerican region, 162 of the species are in the genus *Miconia*. Of this total, 126 species of *Miconia* occur in Costa Rica and Panama. It comes as no surprise, therefore, that the lion's share of novelties continues to come from these two countries, both of which are important centers of biodiversity in northern Latin America.

SPECIES DESCRIPTION

Miconia colliculosa Almeda, sp. nov.

Fig. 1

TYPE. — COSTA RICA. Limón: Cantón de Talamanca Amubri. Camino entre Amubri y Soki. Siguiendo el Río Ñabri hacia Alto Soki, 9°29'50"N, 82°59'10"W, elev. 150 m, 3 Jul. 1989, Herrera 3129 (holotype: CAS!; isotypes: CR!, INB!, MEXU! MO).

Section *Amblyarrhena*. Frutex vel arbuscula 2–6 m. Ramuli teretes sicut petioli foliorum subtus venae primariae inflorescentia hypanthiaque dense pilis penicillato-stellatis induti vel sicut petioli inflorescentia hypanthiaque pilis stipitato-dendroideus dense armati. Lamina 9.5–19 × 4.2–10.6 cm elliptico-ovata 5(–7)-plinervata, supra glabra, subtus in venis secundariis tertiariisque pilis stellatis modice puberuli. Panícula 4–8 cm longa multiflora; flores 5-meri; calycis tubus 0.5 mm altus, lobis interioribus 1–1.5 mm longis late ovatis, dentibus exterioribus 1.5–2 mm eminentibus. Stamina isomorphica glabra, thecis subulatis, poro dorsaliter inclinato; antherarum thecae 1 mm longae, connectivum nec prolongatum nec appendiculatum. Ovarium 5-loculare et fere omnino inferum apice in collo 0.25 mm alto modice pilis glanduliferis.

Shrub or small tree 2–6 m tall. Old branches terete, glabrous, and somewhat striate. Uppermost cauline internodes, petioles, inflorescences, pedicels, and hypanthia densely covered with brown penicillate-stellate and/or coarse dendritic hairs. Leaves of a pair equal to somewhat unequal in size; petioles 0.7–1.5 cm long; blades chartaceous when dry, 9.5–19 × 4.2–10.6 cm, elliptic-ovate, apex acuminate, base obtuse to broadly rounded, oblique and then slightly decurrent on the petioles, margin undulate-denticulate varying to subentire, 5(–7)-plinerved, the innermost pair of elevated primaries diverging from the median vein in subopposite or alternate fashion 0.5–1.6 cm above the blade base, the transverse secondaries elevated and spaced 3–8 mm apart at the widest portion of the blade, adaxially glabrous at maturity, abaxially beset with a copious cover of penicillate-stellate hairs on the elevated primary veins and a moderate cover of stellate hairs on the prominulous network of transverse secondary and higher order veins. Inflorescence terminal, 4–8 cm long, sometimes appearing pseudolateral because of elongation of axillary shoots, paniculiform with ultimate branchlets terminating in simple dichasia; bracts of rachis nodes paired, linear-oblong, 2–4 mm long, 0.25–1 mm wide, essentially glabrous adaxially, copiously stellate-pubescent abaxially; bracteoles persistent, typically 3 per pedicel, sessile, linear-oblong, 1–3 mm long, 0.25–0.75 mm wide, margin entire, glabrous adaxially and moderately stellate-pubescent abaxially. Pedicels obsolete or up to ca. 0.25 mm long. Hypanthia (at anthesis) 2–2.5 mm long to the torus. Calyx tube 0.5 mm long, the calyx lobes ovate to suborbicular, often bluntly mucronate at the apex, stellulate-puberulent on both surfaces, 1–1.5 × 1.5–2 mm; exterior calyx teeth 5, subulate, 1.5–2 mm long and conspicuously exceeding the calyx lobes; torus glabrous on the adaxial face. Petals 5, glabrous, white, oblong-obovate, ± rounded apically, 3–4 mm long, 1.5–2 mm wide. Stamens 10, isomorphic, filaments glabrous, complanate, 1 mm long; anthers 1 mm long, 0.5 mm wide, yellow, laterally ± compressed, bluntly subulate in dorsal and ventral views, ± elliptic in profile view, ± truncate apically with a dorsally inclined pore; connective thickened dorsally but unappendaged. Ovary (at anthesis) completely inferior, 5-locular, globose, apex fluted but becoming ± rounded at maturity, apically crowned with an undulately lobed collar 0.25 mm high that is minutely glandular-puberulent along the rim. Style straight, glabrous, 3.25 mm long, stigma capitellate. Berry globose, 4–5 mm in diameter. Seeds ± triangular in outline, angulate varying to somewhat rounded on the convex face, 0.5 mm long, white to tan, the testa colliculose throughout, the lateral raphe extending the entire length of the seed.

PHENOLOGY. — The three known collections, made in January, February, and July, are in flower and fruit.

DISTRIBUTION. — A little-collected rain forest species known from the southeastern corner of Limón province in Costa Rica and the Nusagandí region of Comarca de San Blás province, Panama, at 150–350 m (Fig. 2).

PARATYPES. — PANAMA. Comarca de San Blás: Llano-Cartí road, kilometer 16 along trail to creek on the Caribbean drainage, 2 Feb. 1989, *Almeda et al.* 6514 (CAS, MO, PMA, SCZ, US); headwaters of Río Nergala along continental divide, 11 Jan. 1985, *de Nevers & Herrera* 4514 (CAS, MO).

DISCUSSION. — Among described species of *Miconia* section *Amblyarrhena*, *M. colliculosa* is most similar to a group of three allopatric species that includes *M. calocoma* Almeda of northeastern

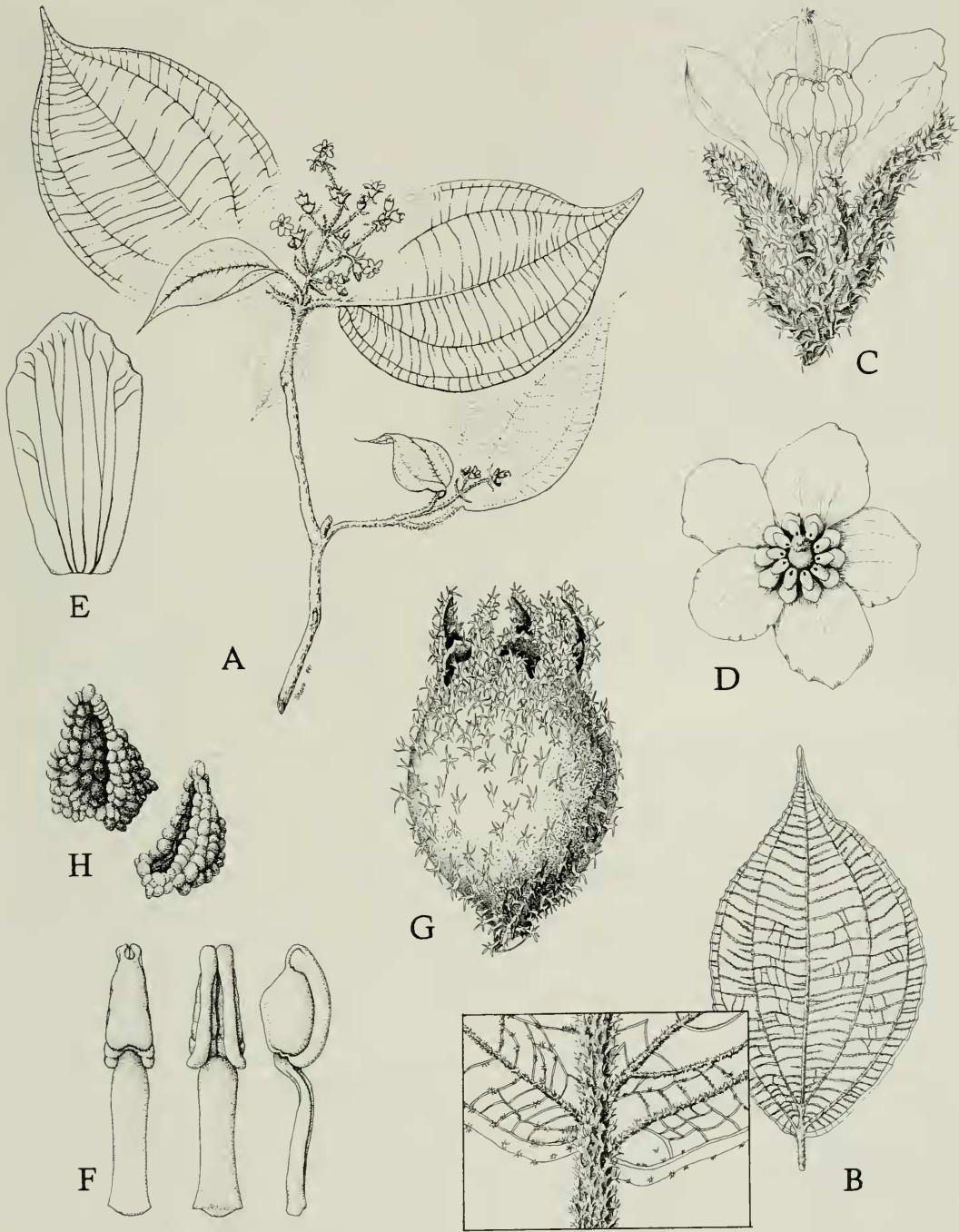


FIGURE 1. *Miconia colliculosa* Almeda. A, habit, $\times \frac{1}{2}$; B, representative leaf (abaxial surface), $\times \frac{1}{2}$, with enlargement of pubescence details at foliar base; C, flower (at anthesis) with one petal removed, $\times 10$; D, flower as seen from above, $\times 5$; E, petal (adaxial surface), $\times 10$; F, stamens, dorsal view (left), ventral view (middle), and profile view (right), $\times 19$; G, mature berry, $\times 7$; H, seeds, $\times 40$. (A–F from Almeda *et al.* 6154; G and H from the holotype.)

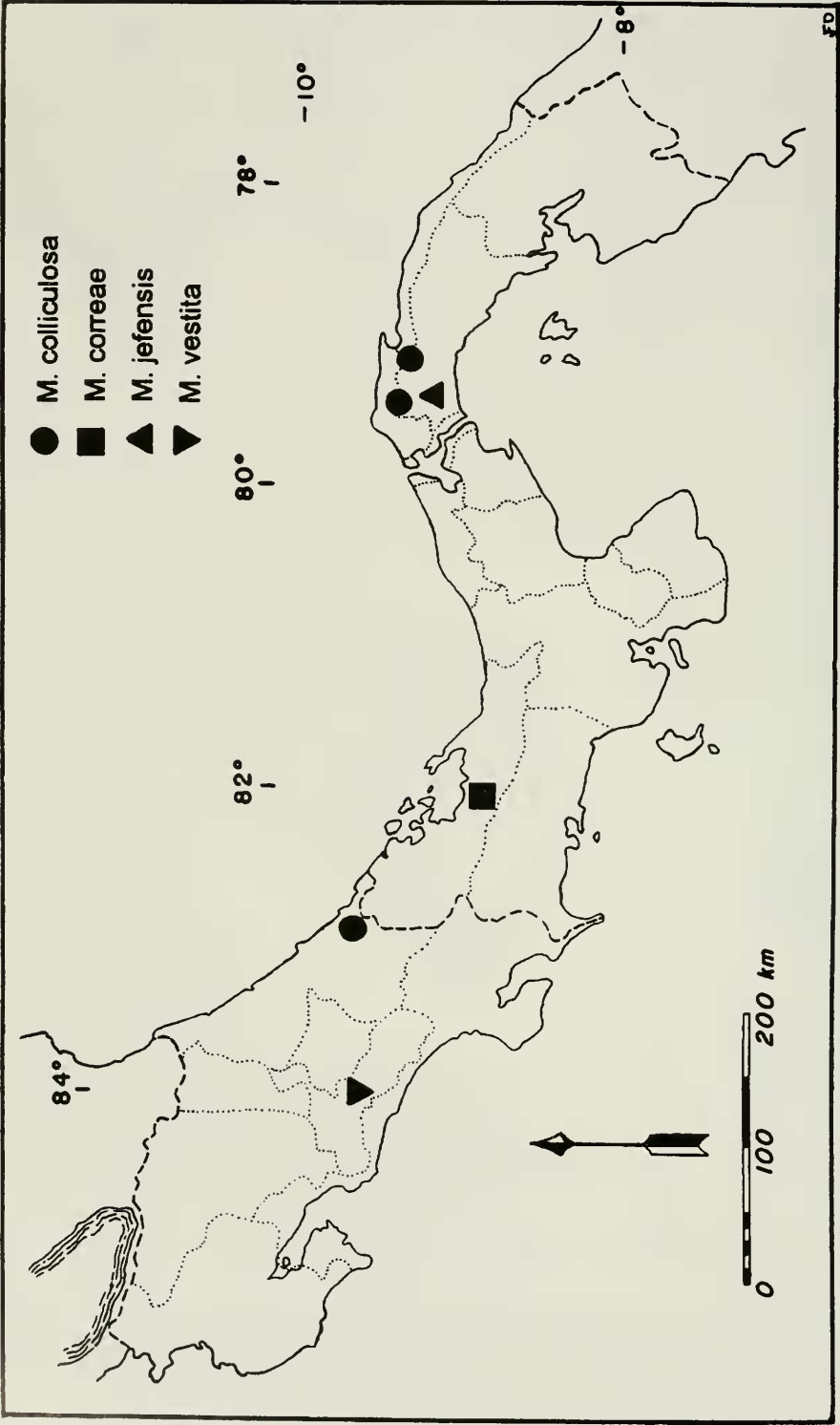


FIGURE 2. Distributions of *Miconia colliculosa*, *M. correae*, *M. jefensis*, and *M. vestita* in Costa Rica and Panama.

Costa Rica, *M. rupticalyx* Wurdack of Venezuela, and *M. wagneri* J. F. Macbr. of Peru, Bolivia, and northern Brazil (Almeda 1989a). All of these taxa differ from *M. colliculosa* in having 4-merous flowers, an irregularly rupturing apiculate calyx, and other diagnostic reproductive characters. *Miconia calocoma*, for example, has ventrally inclined anther pores and a 4-locular ovary. *Miconia rupticalyx* and *M. wagneri* share the character state of dorsally inclined anther pores with *M. colliculosa* but both have 2(–3)-locular ovaries. In addition, *M. rupticalyx* has reniform bracteoles whereas *M. wagneri* has anther connectives that are dilated at the filament insertion into dorso-basal spurs.

ETYMOLOGY. — The epithet for this species is diminutive of the Latin word *collinus*, of a hill, in reference to the little rounded or hillock-like elevations that make up the seed coat.

***Miconia correae* Almeda, sp. nov.**

Fig. 3

TYPE. — PANAMA. Bocas del Toro: Trocha 3 de noviembre, near Paso de la Zorra shelter, south and a bit west of Chiriqui Grande and ca. 2 km NE of the peak of Cerro Guayabo, 8°48'N, 82°14'–15'W, elev. ca. 1300 m, 5 Apr. 1978, *Dressler 5806* (holotype: CAS!; isotype: PMA).

Section *Jucunda*. Frutex 1 m. Ramuli teretes sicut inflorescentia primum sparsiuscule vel modice glandulis clavatis 1–1.75 mm longis induti demum glabrati. Folia in quoque pari disparilia; lamina 2.9–6.2 × 1.5–3.8 cm cordata vel ovata, 5–7-nervata, supra glabra, subtus pilis laevibus glanduliferis sparsiusculi puberuli. Panicula 4–4.5 cm longa pauciflora; flores 4-meri; calycis tubus 0.5–1 mm altus, lobis interioribus 1 × 1.5–2 mm triangularibus 1 mm altis, dentibus exterioribus subulatis 2.5–3 mm eminentibus. Stamina isomorphica glabra, thecis subulatis, poro dorsaliter inclinato; antherarum thecae 2.5 mm longae, connectivo dorsaliter ad basim tuberculo 0.5 mm elevato ornato. Ovarium 4-loculare et fere omnino inferum apice glabro.

Shrub to 1 m tall. The internodes terete, sparsely covered with spreading smooth glandular hairs 1 mm long when young like the inflorescence but becoming glabrous with age. Distal branchlet nodes copiously setose with spreading hairs (glandular in part) 1–1.75 mm long. Leaves of a pair unequal in size; petioles glabrous, 1–2.9 cm long; blades membranaceous, somewhat brittle when dry, 2.9–6.2 × 1.5–3.8 cm, cordate varying to ovate, apex caudate-acuminate, base cordate to broadly rounded, margin ciliate-serrulate, 5–7-nerved, adaxially glabrous, abaxially sparingly and irregularly covered with minute inconspicuous deciduous glandular hairs. Inflorescence terminal, 4–4.5 cm long, paniculiform, reportedly pendant with ultimate branchlets terminating in simple cymes or solitary flowers; bracts of rachis nodes paired, ensiform to ligulate, 2–3 × 0.5 mm (including apical hair) essentially glabrous on both surfaces; bracteoles narrowly lanceolate to subulate, 2 mm long (including apical hair) and less than 0.5 mm wide, glabrous on both surfaces. Pedicels 1–2 mm long at anthesis, sparsely beset with spreading glandular hairs. Hypanthia (at anthesis) campanulate, 3–4 mm long to the torus (vascular ring), glabrous throughout. Calyx lobes on flowering hypanthia 4, glabrous throughout, rounded-deltoid, 1 mm long and 1.5–2 mm wide basally; exterior calyx teeth subulate, 2.5–3 mm long, adnate to and exceeding the calyx lobes. Petals 4, glabrous, white, elliptic-ovate, rounded at the apex, 0.7–1 × 0.4–0.5 cm, the margin entire. Stamens 8, isomorphic; filaments glabrous, 2.5–3 mm long; anthers 2.5 mm long, yellow, subulate, rounded apically with a dorsally inclined pore; connective conspicuously thickened dorsally and prolonged basally into a caudiform appendage 0.5 mm long. Ovary (at anthesis) completely inferior, 4-locular, oblong, glabrous at the exposed apex. Style straight, glabrous, 7 mm long; stigma capitate. Mature berry not seen.

PHENOLOGY. — The single known collection, which is in flower, was made in early April.

DISTRIBUTION. — The label on the type describes the habitat in western Panama as open rocky areas at 1300 m (Fig. 2).

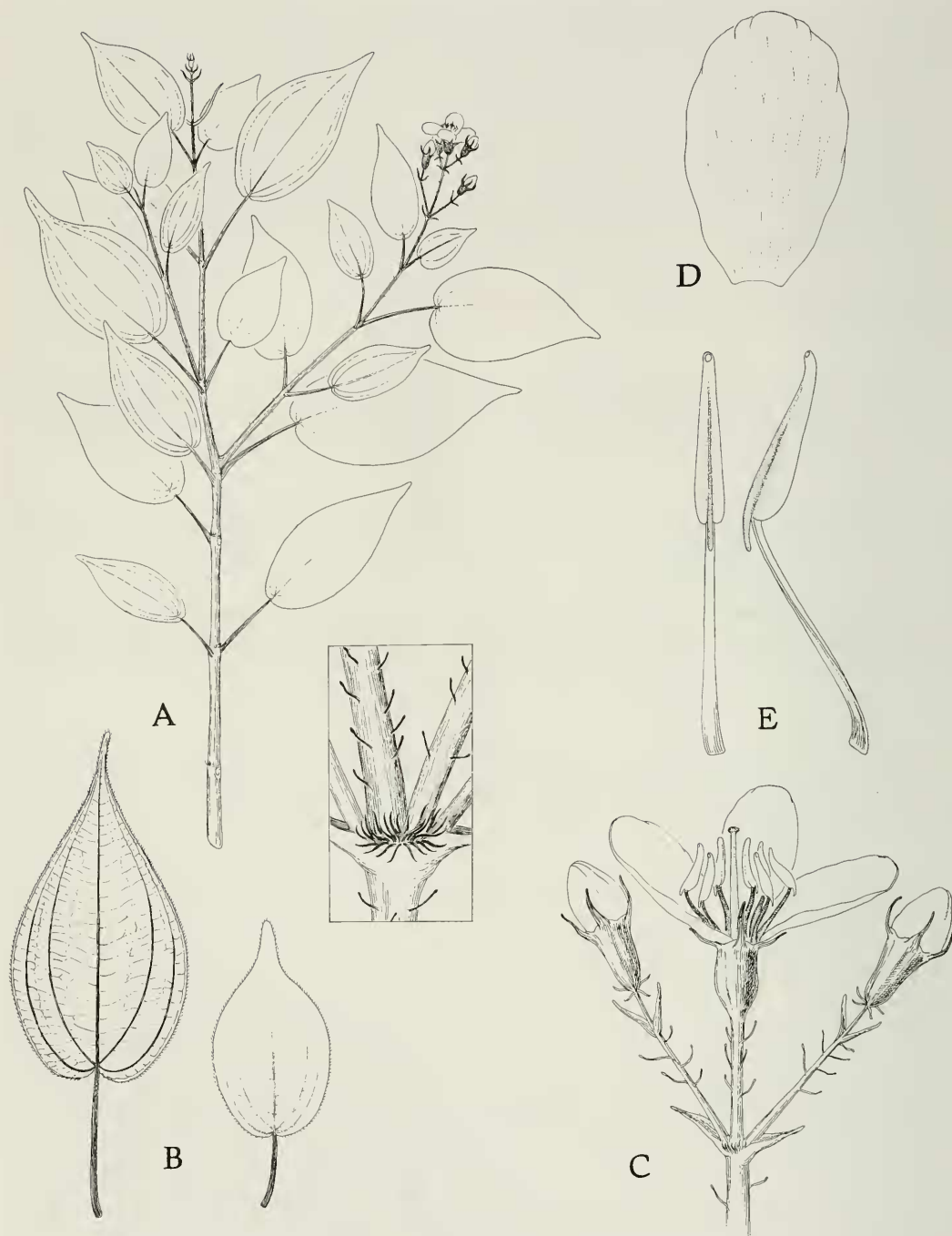


FIGURE 3. *Miconia correae* Almeda. A, habit, $\times \frac{1}{2}$, with enlargement (right) showing nodal pubescence details; B, representative leaves (abaxial surfaces) from a node, $\times \frac{1}{4}$; C, portion of the inflorescence, \times ca. 2; D, petal, \times 4; E, stamens, dorsal view (left) and profile view (right), \times ca. 11. (A-E from the holotype.)

DISCUSSION. — The subulate anther thecae, dorso-basal connective prolongation, and greatly developed calyx teeth that much exceed the calyx lobes dictate placement of *M. correae* in section *Jucunda* as defined by Cogniaux (1891) and elaborated upon by Gleason (1958). Among described species of *Miconia*, this new species most closely resembles *M. zemurrayana* Standl. & L. O. Williams of Mexico (Chiapas), Guatemala, El Salvador, and Honduras. They are similar in flower size, petal color, and the elongate projecting calyx teeth. *Miconia zemurrayana* differs most conspicuously in having glabrous internodes, narrower lanceolate leaves (0.5–1.7 cm) that are coarsely denticulate (at least distally), 5-merous flowers, unappendaged anther connectives, and ventrally inclined anther pores. Another distinctive feature of *M. zemurrayana* is the presence of tufts of stipitate-stellate hairs at the junction of the inner pair of elevated primaries with the median vein on the abaxial surface of each leaf blade. In the protologue of *M. zemurrayana*, Standley and Williams (1950) gave no sectional disposition for this species. Based on the characters enumerated above, it too can be assigned to section *Jucunda*.

ETYMOLOGY. — This species is named for Mireya D. Correa, Curator of the herbaria at the University of Panama and the Smithsonian Tropical Research Institute. Professor Correa first brought the only known collection of this species to my attention and has been a perennial source of assistance during my field work in Panama over many years.

***Miconia crocata* Almeda, sp. nov.**

Fig. 4

TYPE. — PANAMA. Coclé: Forested slopes above El Copé along abandoned road leading to the continental divide, elev. 700–850 m, 23 Feb. 1988, *Almeda et al.* 5930 (holotype: CAS!; isotypes: DUKE!, MEXU!, MO!, NY!, PMA!, TEX!, US!).

Section *Cremanium*. Frutex vel arbor parva 2–5 m. Ramuli quadrangulati demum teretes sicut folia inflorescentia hypanthiaque plerumque glabri. Lamina 5–10 × 1.4–3.4 cm anguste elliptica trinervata. Panicula 1.5–2.5 cm longa multiflora; flores 5-meri; calycis tubus non evolutus, lobis interioribus 0.5 mm longis rotundatis, dentibus exterioribus crassis appressis inframarginalibus. Stamina isomorphica glabra poro ventraliter inclinato; antherarum thecae 0.5–0.25 m oblongo-cuneatae 4-porosae, connectivum vix (0.75 mm) prolongatum nec appendiculatum. Ovarium 3-loculare omnino inferum apice costato sparsissime glanduloso-puberulo vel sparse furfuraceo.

Shrub or small tree 2–5 m tall. Uppermost branchlet internodes glabrous, quadrate and conspicuously carinate, becoming rounded and somewhat ridged in age. Leaves of a pair equal or slightly unequal in size; petioles glabrous, 0.6–3.2 cm long, blades membranaceous, glabrous on both surfaces, 5–10 × 1.4–3.4 cm, narrowly elliptic, apex acuminate, base narrowly acuminate, margin mostly entire toward the blade base, otherwise obscurely crenulate, 3-nerved with an additional pair of inconspicuous inframarginal nerves evident above the blade base and becoming inconspicuous at the acuminate apex, the transverse secondaries prominulous and spaced 1–2 mm apart at the widest portion of the blade. Inflorescence a terminal corymbiform panicle 1.5–2.5 cm long, the rachis glabrous, quadrate and carinate; bracts and bracteoles evidently early deciduous and absent at anthesis but leaving well-developed scars at upper nodes and at the base of floral pedicels. Pedicels 0.25 mm long or not developed above the point of bracteole attachment, glabrous. Hypanthia (at anthesis) campanulate to cupulate, 1.5 mm long to the torus (vascular ring), glabrous. Calyx lobes 5, glabrous throughout, broadly rounded-undulate, 0.5 mm long and 0.5–0.75 mm wide basally, exterior teeth broadly deltoid or evident as a thickening mostly less than 0.25 mm long, adnate to and mostly shorter than the calyx lobes when dry. Petals 5, erect and concave, glabrous, yellow or yellow with a flush of red or maroon

apically, oblong-ovate, rounded at the apex, 1.5×1 – 1.25 mm, the margin entire. Stamens 10, isomorphic, incurved toward the central axis of the flower; filaments glabrous, complanate, tapered from base to apex, saffron yellow when dry, 2 mm long; anthers 4-celled, 0.5 mm long, 0.25 mm wide at the apex, yellow or yellow flushed with red apically, \pm infundibuliform to obliquely cuneate in profile view, the pore \pm quadrate and strongly inclined ventrally; connective thickened and prolonged 0.75 mm below the anther thecae but lacking appendages. Ovary (at anthesis) inferior, 3-locular, globose, apex fluted and sparsely glandular- or furfurate-puberulent but becoming rounded to truncate and glabrate in fruit. Style straight, glabrous, 2 mm long; stigma truncate to capitate. Berry globose, blue-green becoming white with a faint flush of blue when mature, 4–5 mm in diameter. Seeds \pm pyriform, 0.5 mm long, beige, tuberculate.

PHENOLOGY. — Flowering sporadically from January through September; fruiting specimens have been collected from January through May and in October.

DISTRIBUTION. — Low montane cloud forests along the continental divide in Coclé province from the El Copé region northeast to Los Volteaderos at 480–1000 m (Fig. 5).

PARATYPES. — PANAMA. Coclé: Slopes above El Copé along abandoned road leading to the continental divide, $8^{\circ}38'N$, $80^{\circ}38'W$, 24 Jan. 1989, *Almeda et al.* 6388 (CAS, DUKE, MICH, MO, NY, PMA, US); about 7–10.5 km beyond El Copé in Omar Torrijos National Park along rocky trail to Río Blanco and Limón beyond Alto Calvario, 21 Feb. 1996, *Almeda et al.* 7649 (CAS, MO, PMA, US); 12.4 km N of La Pintada on the road from Penonomé to Coclecito on trail through remnant forest on the continental divide at Los Volteaderos, 23 Feb. 1996, *Almeda et al.* 7680 (CAS, PMA); El Copé, along gravel road to the right before the sawmill, 18 Oct. 1979, *Antonio* 2204 (CAS, MO); región del Copé, 24 May 1981, *Correa et al.* 4277 (CAS, PMA); Alto Calvario region, 4.5 miles N of El Copé, $8^{\circ}38'N$, $80^{\circ}36'W$, 12 Sep. 1987, *Croat* 67517 (CAS, MO); Alto Calvario about 6 km N of El Copé, $8^{\circ}39'N$, $80^{\circ}36'W$, 23 June 1988, *Croat* 68828 (CAS, MO); along Atlantic side of continental divide above El Copé, $8^{\circ}40'N$, $80^{\circ}37'W$, 25 Jul. 1983, *Miller et al.* 835 (CAS, MO); Atlantic slope of the continental divide above El Copé, $8^{\circ}40'N$, $80^{\circ}36'W$, 13 Feb. 1982, *Knapp & Dressler* 3407 (CAS, MO); El Copé, División continental arriba de Barrigón y el aserradero viejo, 27 Apr. 1992, *Peña et al.* 369 (CAS, PMA); above El Potroso sawmill N of El Copé, 13 May 1981, *Sytsma & Andersson* 4561 (CAS, PMA); 4.5 miles N of El Copé near the old sawmill, $8^{\circ}38'N$, $80^{\circ}35'W$, 8 Apr. 1988, *Thompson* 4775 (CAS, CM).

DISCUSSION. — Among the species of section *Cremanium* characterized by a 3-locular ovary and obovoid, 4-celled anthers that open by a wide terminal pore, *M. crocata* appears to be most similar to *M. chiriquiensis* Almeda of Costa Rica and Panama and *M. rubens* (Sw.) Naudin of Jamaica, Colombia, and Venezuela. The latter differs from *M. crocata* by the somewhat swollen cauline nodes, ferruginous pubescence on distal nodes and juvenile foliage, bracteoles with fimbriate margins, dioecious floral condition, and glabrous ovary apex. *Miconia crocata* seems closest to *M. chiriquiensis*. They share similarities in anther and stigma morphology, posture and orientation of petals and androecium at anthesis. In both species the petals are erect and concave and the filaments are geniculate in a way that closely juxtaposes the anther pores in a ring around the stigma. However, *M. chiriquiensis* has leaf blades that are ciliate-serrulate distally, caudate-acuminate apically, and furfurate-punctate abaxially. *Miconia chiriquiensis* also differs in a number of other diagnostic characters. It has an openly branched elongate panicle inflorescence, suborbicular petals, a glabrous ovary apex, and seeds that superficially appear to have a smooth testa but are, in fact, minutely papillate. *Miconia crocata* and *M. chiriquiensis* are allopatric and have different elevational ranges. The latter ranges from the Cordillera de Talamanca in Costa Rica southeast to the Volcán Barú region of western Panama and consistently occurs at higher elevations (1600–2500 m).

All Panamanian and some Costa Rican populations of *M. chiriquiensis* also have white petals and anthers, but some recent Costa Rican collections (*Almeda & Anderson* 5322; *Grayum* 10333) have petals and stamens that are bright yellow like those of *M. crocata*.

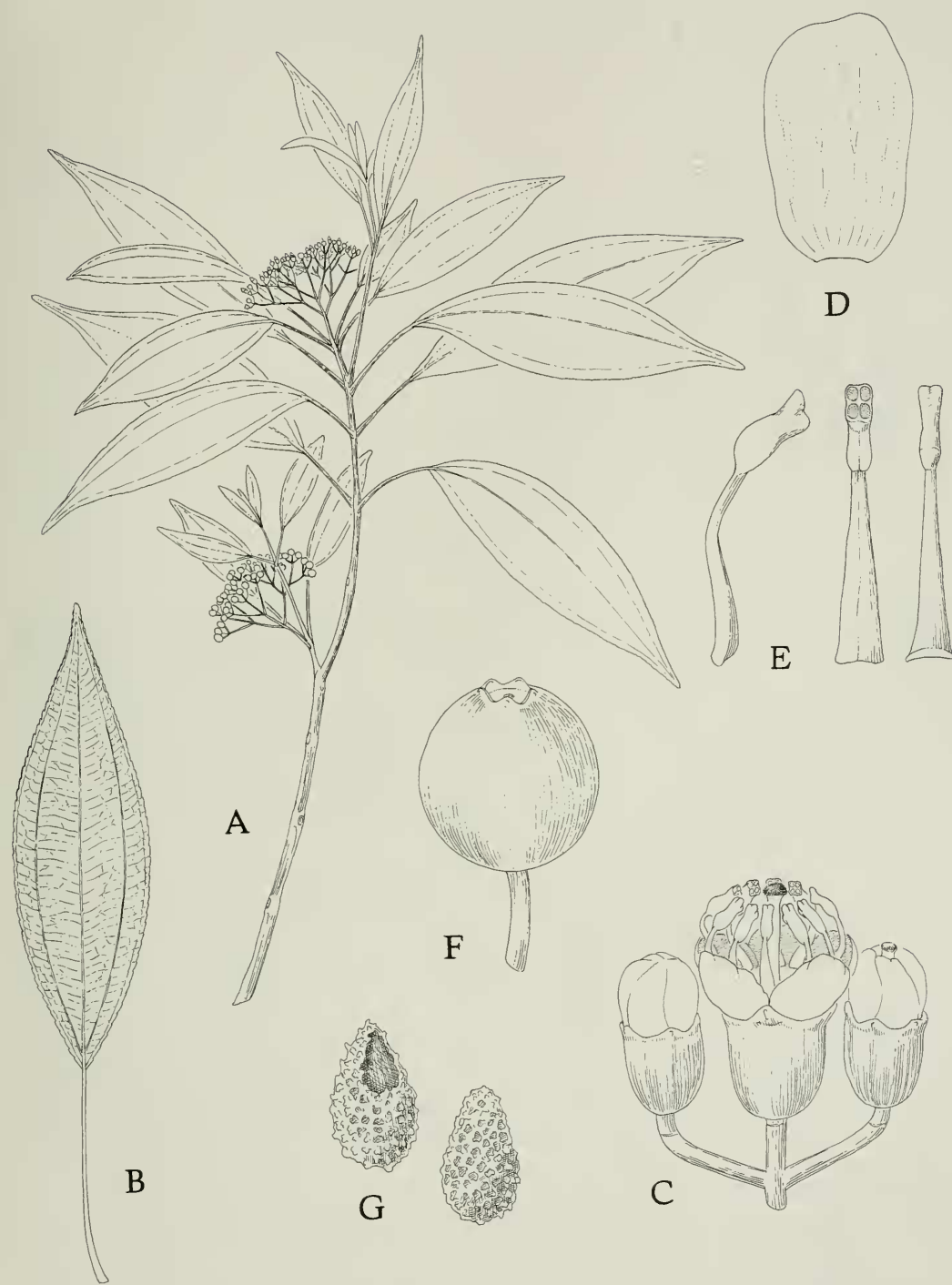


FIGURE 4. *Miconia crocata* Almeda. A, habit, $\times \frac{1}{2}$; B, representative leaf (abaxial surface), $\times \frac{3}{4}$; C, portion of the inflorescence showing a fully opened flower, \times ca. 8; D, petals (adaxial surface), \times ca. 22; E, stamens, profile view (left), ventral view (center), and dorsal view (right), \times 24; F, mature berry, \times 6; G, seeds, \times 40. (A–G from the holotype.)

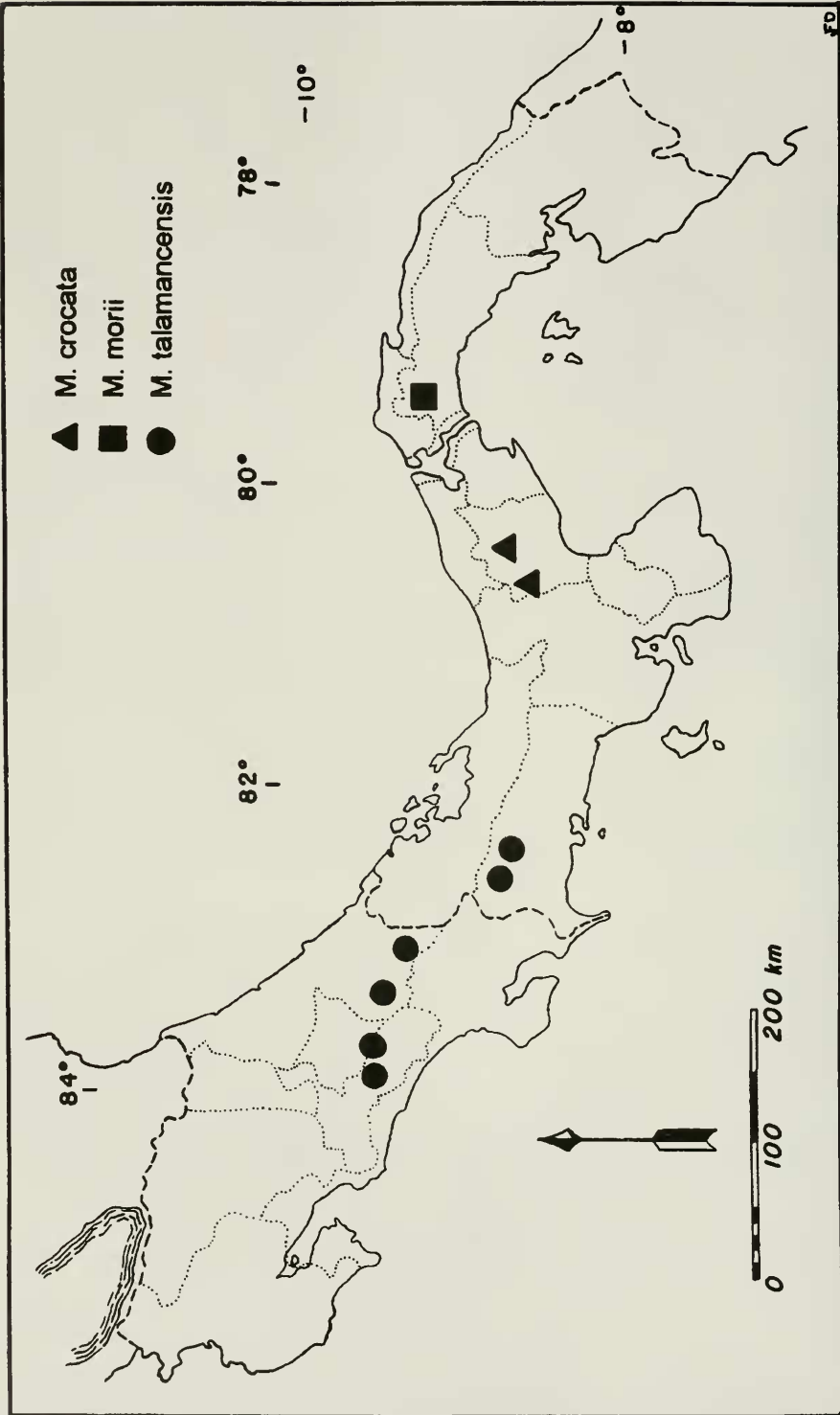


FIGURE 5. Distributions of *Miconia crocata*, *M. morii*, and *M. talamancensis* in Costa Rica and Panama.

ETYMOLOGY. — Because yellow is such an uncommon petal color in the tribe Miconieae, the name chosen for this new species emphasizes this feature. The epithet *crocata* is derived from the Greek word, *krokotos*, saffron-yellow, in reference to the striking color of the corolla and androecium, especially upon drying.

Miconia jefensis Almeda, sp. nov.

Fig. 6

TYPE. — PANAMA. Panamá: Cerro Jefe, along summit road and along trail into the Chagres Valley, ca. 900 m, 19 Feb. 1988, *Almeda et al.* 5826 (holotype: CAS!; isotypes: MO!, NY!, PMA!).

Section *Miconia*. Frutex 2–4 m. Ramuli primum paulo compressi demum sulcato-quadrangulati sicut petioli foliorum subtus venae primariae inflorescentiaque dense pilis penicillato-stellulatis induti. Lamina 13.5–41 × 7–14 cm elliptica vel elliptico-ovata 5–7-plinervata supra glabra, subtus in venis secundariis tertiariisque pilis stellulatis modice puberuli. Panicula 6–14 cm longa multiflora; flores 5-meri; calycis tubus 0.25 mm altus, lobis interioribus 0.25 longis late rotundatis, dentibus exterioribus crassis adhaerentibus lobos interiores aequantibus. Stamina isomorphica glabra, thecis subulatis, poro paulo dorsaliter inclinato; connectivum nec prolongatum nec appendiculatum. Ovarium 5-loculare et 4/5 inferum apice sparsiscuscul glanduloso-puberulo.

Shrub 2–4 m tall. Uppermost branches compressed-rounded becoming bisulcate to rounded-quadrate with age, the young branchlets, petioles, elevated primaries of abaxial foliar surfaces, and inflorescence rachis and pedicels densely covered with a brown scurfy indument of penicillate-stellulate hairs. Leaves of a pair somewhat unequal in size; petioles 1–4(–7) cm long, blades subcoriaceous when dry, 13.5–41 × 7–14 cm, elliptic to elliptic-ovate, apex long acuminate to attenuate, base varying from subcordate to tapering and abruptly rounded at the petiole junction, margin entire, 5–7-plinerved, the innermost pair of elevated primaries diverging from the median vein in alternate fashion (2–)4.2–8.5 cm above the blade base, the transverse secondaries elevated and spaced 5–8 mm apart at the widest portion of the blade, adaxially glabrous at maturity, abaxially moderately covered with a brown scurfy-stellulate indument on the secondary and higher order veins. Inflorescence a terminal multiflowered panicle 6–14 cm long, divaricately branched at the node initiating the inflorescence; bracts of the rachis nodes persistent, 1.5–4.5 mm long, 0.25–1 mm wide, glabrous adaxially, glabrous or sparsely covered with scurfy puberulence abaxially; bracteoles sessile and persistent, paired, trimerous, or quaternate, sometimes fused basally to form a shallow nodal collar, subulate, 1–1.25 mm long, 0.5 mm wide basally, essentially glabrous adaxially and sparingly stellulate-furfuraceous to glabrous abaxially. Pedicels nearly obsolete or up to 1 mm long. Hypanthia (at anthesis) 1–1.5 mm long to the torus, copiously to moderately stellulate-furfuraceous. Calyx tube 0.25 mm long, the calyx lobes rounded-triangular, 0.25 mm long; exterior calyx teeth 5, bluntly subulate, up to 0.25 mm long, equaling or somewhat shorter than the calyx lobes but typically obscured by the dense indument; torus fimbriate-puberulent or glandular-puberulent. Petals 5, glabrous, magenta, elliptic-ovate to oblong, rounded apically, 2–3 mm long, 0.75–1 mm wide. Stamens 10, isomorphic, filaments glabrous, complanate, constricted distally just below the anther thecae, 0.75–1 mm long; anthers 1 mm long, 0.25 mm wide, pale yellow, linear-oblong, rounded to truncate at the apex with a somewhat dorsally inclined terminal pore; connective thickened dorsally but unappendaged. Ovary (at anthesis) 4/5 inferior, 5-locular, globose, apex deeply fluted but becoming rounded at maturity, densely white-papillate with a few brown glandular hairs. Style typically declined to one side of the flower, glabrous, 2.5–3 mm long; stigma capitellate. Berry pink but turning blue-purple when mature, 3–4 mm long and 3–4 mm in diameter. Seeds angular-pyramidal, 0.5 mm long, brown or tan, smooth with finely verruculose angles on the convex face.

PHENOLOGY. — Flowering sporadically from February through July; fruiting specimens have been collected in February, July, and September.

DISTRIBUTION. — Uncommon in low montane cloud forests in the Cerro Jefe and Cerro Azul regions of Panama province at 700–1,000 m (Fig. 2).

PARATYPES. — PANAMA. Panamá: About 29–30 km beyond the Interamerican Highway off of a dirt road on Altos de Pacora, 26 Feb. 1996, *Almeda et al.* 7696 (CAS, MO, PMA); Vicinity of Cerro Jefe, along road to summit, 9°14'N, 79°22'W, 8 Jul. 1987, *Croat* 67079 (CAS); 3–3.5 miles NE of Altos de Pacora and 11.1–11.6 miles beyond Lago Cerro Azul, 19 June 1988, *Croat* 68627 (CAS, MO); Sendero “El Cantar,” borde de quebrada, Cerro Azul, Parque Nacional Chagres, 26 Jul. 1991, *Carrasquilla et al.* 3267 (CAS, PMA); región de Cerro Jefe, area cercana la antena, 13 Jul. 1994, *Galdames & Montenegro* 1389 (CAS, SCZ); región de Cerro Jefe, area cercana al limite con la Urbanización Altos de Cerro Azul, 13 Jul. 1994, *Galdames & Montenegro* 1409 (CAS, SCZ); headwaters of the Río Utivé, Cerro Jefe, 2 km from last branch in road to summit, 13 Sep. 1981, *Knapp* 1209 (CAS, MO).

DISCUSSION. — *Miconia jefensis* is related to a group of species that includes *M. iteophylla* Almeda, *M. ligulata* Almeda, and *M. peltata* Almeda. Like *M. jefensis*, two of these taxa are restricted to Panama; *M. ligulata* ranges from Nicaragua to Venezuela (Almeda 1989b). All of these species share a scurfy puberulent indument, linear or oblong petals, unappendaged anthers, a 5-locular ovary, a torus that is puberulent adaxially, and seeds that are nearly identical in size and shape. In overall aspect, *M. jefensis* is most like *M. ligulata*. These two species have angular-pyramidate seeds like the other members of this alliance but they alone share the fine verruculose ornamentation at the angles of the seed testa.

I was inclined to regard initial collections of *M. jefensis* as extraordinary variants of *M. ligulata*. Study of additional material, and the opportunity to examine more than one population of this entity in the field, revealed significant differences in a number of characters that are consistent with the kinds of characters that distinguish closely related species in other complexes within the genus. *Miconia jefensis* is a coarse, robust species with stout nodes that measure 6–10 mm on the widest face. Other diagnostic characters include its magenta petals, 5–7-plinerved leaves with a base varying from subcordate to abruptly rounded at the petiole junction, an inflorescence that is divaricately branched at the node initiating the inflorescence, and an ovary apex that is persistently white-papillate intermixed with a few brown glandular hairs at maturity. Plants of *M. ligulata*, in contrast, are slender in aspect with thinner cauline nodes that measure 3–5 mm at the widest face. This species has white petals, 5-plinerved leaves with a base that is gradually tapered and decurrent on the petiole, an inflorescence that typically branches 1.5–3.5 cm above the initiating node, and an ovary apex that is glabrous in fruit.

Miconia jefensis appears to be endemic to the low montane cloud forest that covers the volcanic region of Cerro Jefe and Cerro Azul, Panama. Hence, this narrowly endemic species joins a varied assemblage of flowering plants restricted to this region (Lewis 1971), including several recently described species of Melastomataceae such as *Adelobotrys jefensis* Almeda (Almeda 1981), *Miconia morii* Almeda (described herein), *Miconia peltata* Almeda (Almeda 1989b), *Tessmannianthus carinatus* Almeda (Almeda 1989c), and *Topobea hexandra* Almeda (Almeda 1990).

ETYMOLOGY. — The specific epithet is derived from the type locality, Cerro Jefe, where most of the collections of this species have been made.

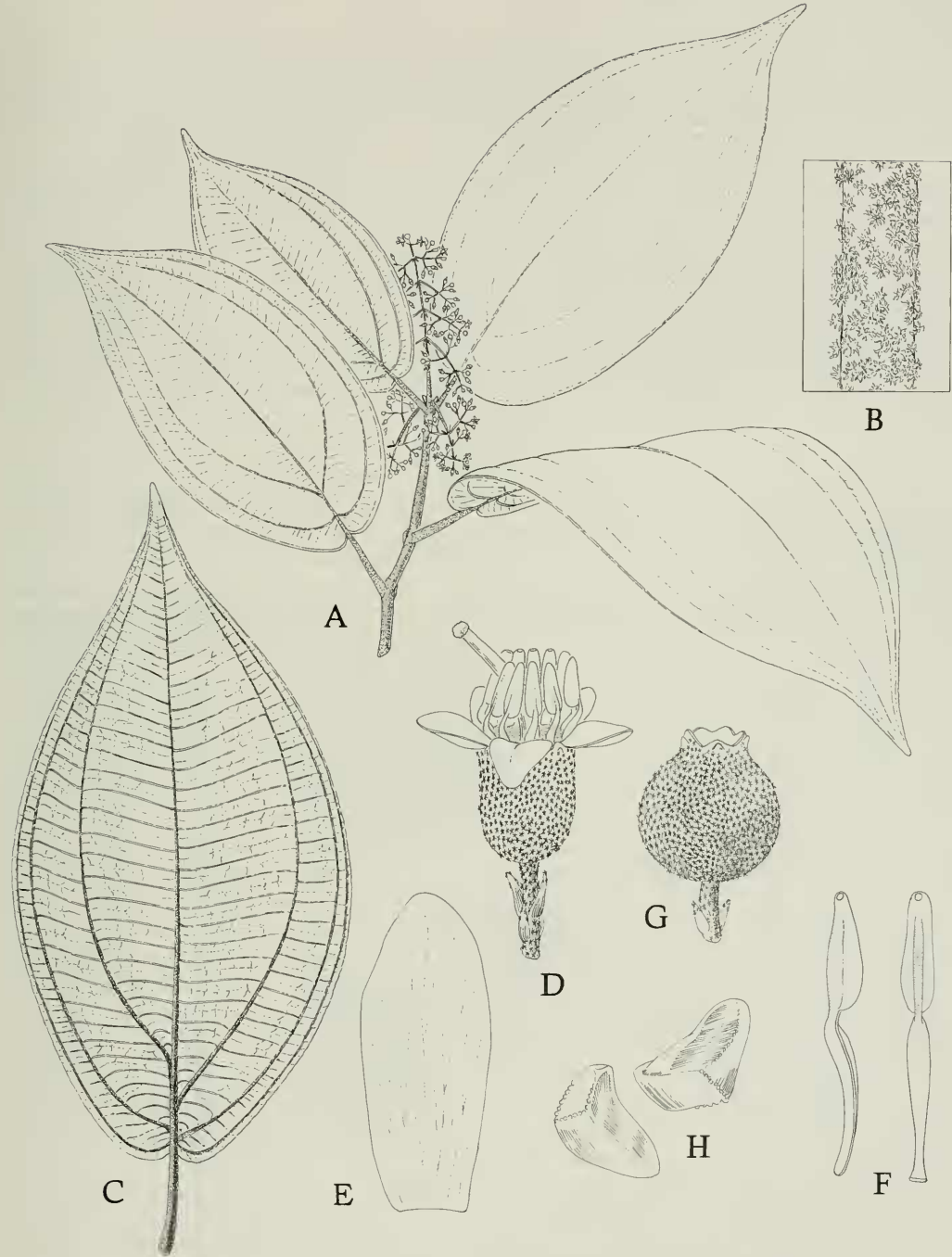


FIGURE 6. *Miconia jefensis* Almeda. A, habit, $\times 1/3$; B, enlargement of detail on cauline internode; C, representative leaf (abaxial surface), $\times 1/2$; D, fully opened flower, \times ca. 13; E, petal (adaxial surface), \times ca. 23; F, stamens, profile view (left) and dorsal view (right), $\times 18$; G, mature berry, $\times 7$; H, seeds, $\times 40$. (A–F from the holotype; G and H from *Almeda et al.* 7696.)

Miconia morii Almeda, sp. nov.

Fig. 7

TYPE.—PANAMA. Panamá: Cerro Jefe, along trail on ridge running NE from summit, cloud forest dominated by *Clusia* spp. and *Colpothrinax cookii*, ca. 1000 m, 18 Dec. 1974, *Mori et al.* 3773 (holotype: CAS!; isotypes: MO, WIS!).

Section *Tamonea*. Frutex 1.2–3 m. Ramuli obtuse tetragoni demum teretes sicut petioli inflorescentia hypanthiaque modice vel dense pilis stellulatis induti. Lamina 6.5–10.5 × 2.5–5 cm elliptica vel elliptico-ovata trinervata, supra glabra, subtus in venulis superficieque sparsiuscule caduceque stellato-puberulo. Panícula 8–11 cm longa multiflora; flores 5-meri; petala extus pilis stellulatis modice induta; calyx 2–2.5 mm longus truncatus, dentibus exterioribus obscuris (0.25 mm) omnino adhaerentibus non eminentibus. Stamina isomorphica, thecis subulatis, poro ventraliter inclinato; antherarum thecae 4–4.25 mm longae, connectivum dorsaliter ad basim paulo elevatum ecalcaratum. Ovarium 5-loculare et ½ inferum apice in collo 0.25 mm alto sparsissime glanduloso puberulo.

Shrub 1.2–3 m tall. Uppermost cauline internodes compressed-rounded to obtusely quadrangular becoming terete with age, the uppermost branchlets, vegetative buds, young leaves and petioles, inflorescence branches, hypanthia, and pedicels moderately to densely appressed-puberulous with brown stellulate hairs 0.7–1 mm in diameter. Leaves of a pair equal to somewhat unequal in size, petioles 0.9–1.5 cm long, blades subcoriaceous when dry, 6.5–10.5 × 2.5–5 cm, elliptic to elliptic-ovate, apex acuminate, base obtuse to rounded, margin entire, adaxially glabrous or essentially so, abaxially moderately to sparsely stellulate-puberulous but sometimes becoming glabrate with age, 3-nerved, the transverse secondary veins elevated and spaced 4.5–8 mm apart at the widest portion of the blade. Inflorescence a terminal multiflowered panicle 8–11 cm long, branching at or 2–2.5 cm above the node initiating the inflorescence; bracts and bracteoles evidently early deciduous and not seen. Pedicels 0.5 mm long. Hypanthia (in fruit) 4–5 mm long to the torus, calyx tube 2–2.5 mm long, flangelike apically and sometimes splitting vertically down toward the torus at one or more points, the calyx lobes essentially obsolete, only evident as a truncate rim; exterior calyx teeth 5, barely evident as blunt callosities ca. 0.25 mm long; torus essentially glabrous adaxially. Petals 5, adaxially glabrous, abaxially densely stellulate-puberulous, oblong-obovate, cucullate distally and rounded at the apex, 5.5–7 mm long, 4–5 mm wide distally. Stamens 10, isomorphic, filaments glandular-puberulent basally, 3 mm long; anthers 4–4.25 mm long, ca. 0.75 mm wide at the base, linear-oblong to subulate, rounded at the apex and opening by a ventrally inclined pore; connective elevated dorso-basally into an elongate padlike thickening 1 mm long. Ovary (in fruit) ½-inferior, 5-locular, subglobose, apex conical, inconspicuously glandular-puberulent, terminating in a shallowly undulate collar 0.25 mm high that is typically glabrate but sometimes adorned with a few minute glandular hairs on the rim. Style straight, glandular-puberulent along the basal third of its length, 6 mm long, stigma capitate. Berry subglobose, 4–6 mm long, 5–7 mm in diameter. Seeds ± triangular in outline, rounded to angulate on the convex face, 0.5–1 mm long, brown, smooth with a dull luster, the lateral raphe extending the entire length of the seed.

PHENOLOGY. — The only flowering collection was made in March; fruiting specimens have been collected from December through May.

DISTRIBUTION. — Known only from the summit and vicinity of Cerro Jefe just east of the Canal Area in Central Panama at 900–1,000 m (Fig. 5).

PARATYPES. — PANAMA. Panamá: Vicinity of Cerro Jefe, near tower, 23 May 1980, *Antonio* 4725 (CAS, MO); Cerro Jefe, 28 Sep. 1986, *Aranda* 154 (PMA, US); road from summit of Cerro Jefe, 9°14'N, 79°23'W, 20 Jan. 1984, *Churchill* 4298 (CAS, MO); Cerro Jefe, by radio tower, 15 Mar.

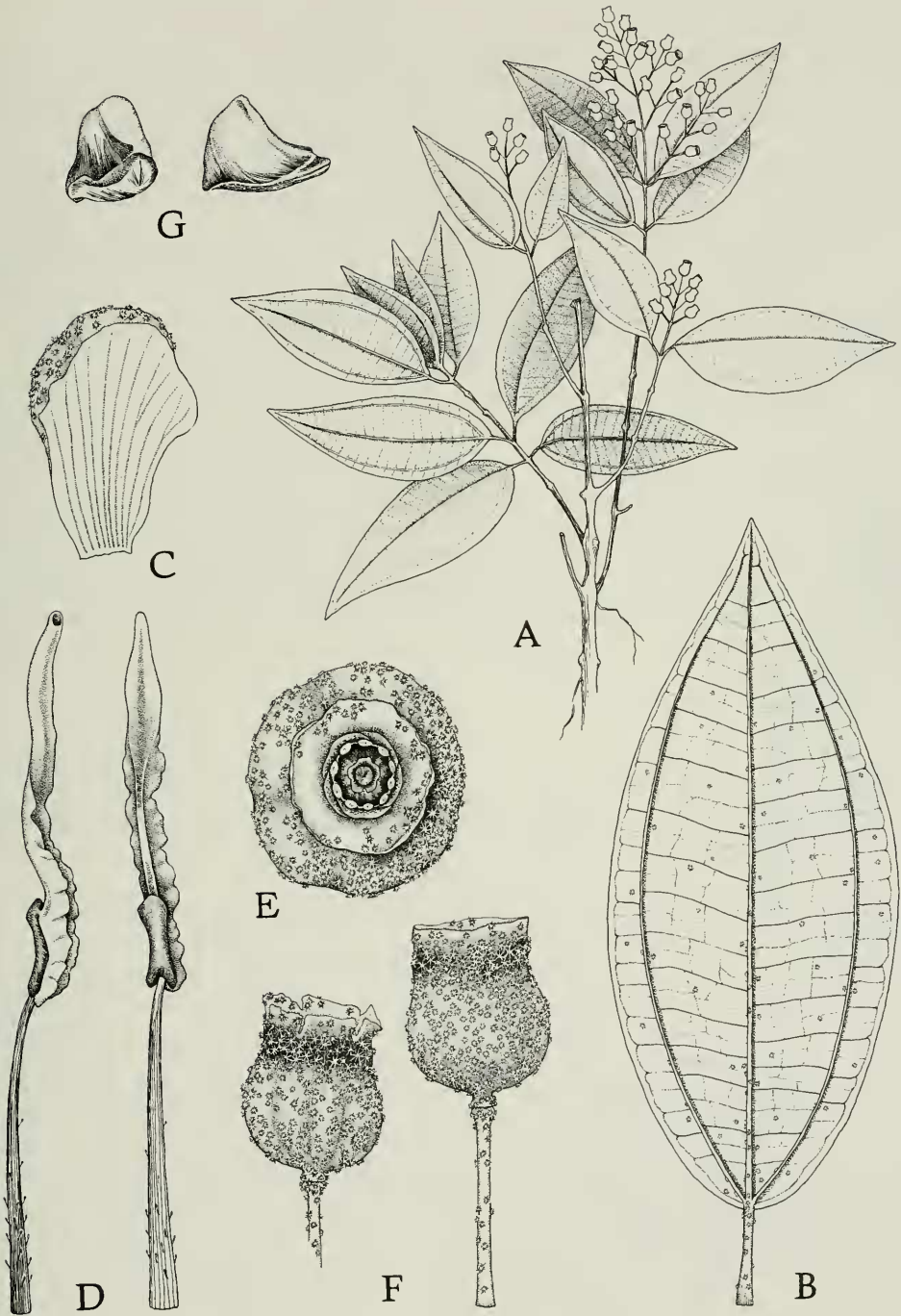


FIGURE 7. *Miconia morii* Almeda. A, habit, $\times 1/3$; B, representative leaf (abaxial surface), $\times 1$; C, petal (adaxial surface), $\times 6$; D, stamens, profile view (left) and dorsal view (right), $\times 14$; E, mature berry as seen from above, $\times 5$; F, mature berries in profile view showing flange-like calyx (right) that sometimes splits in an irregular vertical fashion (left), $\times 4$; G, seeds, $\times 20$. (A from the holotype and Churchill 4298; B from the holotype; C and D from Folsom et al. 2525; E and F from Churchill 4298; G from D'Arcy and McPherson 16060.)

1985, *D'Arcy & McPherson 16060* (CAS, MO); top of Cerro Jefe, 23 km N of Pan-American Hwy., 11 Apr. 1977, *Folsom et al. 2325* (CAS, MO).

DISCUSSION. — Among the species of section *Tamonea*, *M. morii* is morphologically most similar to *M. acuminifera* Triana of western Colombia (Depts. of Caldas south to Nariño). These two species have similar leaf shape, hypanthial and petal indument, calyx details, and seed morphology. They are also similar in having isomerous flowers (ovary 5-locular and petals 5 in number). In *M. acuminifera*, however, the flowers are pleiostemonous (vs. diplostemonous in *M. morii*) and the stamens are dimorphic in size (vs. isomorphic in *M. morii*). Other differences that distinguish these two species involve floral or fruit characters. In *M. acuminifera* the style and filaments are glabrous, the toral vascular ring to which stamens and petals are attached is glandular-puberulent adaxially, and the connective lacks the elevated padlike thickening so typical of *M. morii* (Fig. 5D). The ovary summit in both *M. morii* and *M. acuminifera* is glandular-puberulent, although inconspicuously so at times, but the latter lacks the well-developed collar that surrounds the style base of the former.

There are other modal, but more subtle, differences that can be used to separate these two species. In *M. acuminifera* the leaf blades are typically larger ($14\text{--}28 \times 5\text{--}12.5$ cm), the fruiting hypanthia are strongly constricted distally, and the stellate indument on flowering hypanthia is so dense that it conceals the actual surface. The leaf blades of *M. morii* are $6.5\text{--}10.5 \times 2.5\text{--}5$ cm, the fruiting hypanthia are tapered from the base to the apex (Fig. 5F), and the hypanthial indument does not conceal the actual surface. In addition to being allopatric, *M. acuminifera* appears to grow at higher elevations. Only one of the collections examined was gathered at 950 m; all others were collected at 1,550–2,100 m.

ETYMOLOGY. — This species is named for Scott A. Mori (1941–) collector of the type of this species and other interesting Melastomataceae during his early years of botanical field work in Panama.

***Miconia talamancensis* Almeda, sp. nov.**

Fig. 8

TYPE. — COSTA RICA. Cartago/San José border: Cordillera de Talamanca, Villa Mills in the vicinity of La Georgina, ca. 9750 ft (2972 m), 6 Mar. 1981, *Almeda & Nakai 4777* (holotype: CAS!; isotypes: CR!, INB!, MO!).

Section *Cremanium*. Arbor 6–15 m. Ramuli primum obtuse sulcato-quadrangulati demum teretes sicut petioli folia novella inflorescentia hypanthiaque pilis asperis dense vel modice induti demum glabrati. Lamina $4.5\text{--}12 \times 1.9\text{--}3.8$ cm oblongo-ovata 5-nervata, supra glabra, subtus in venarum primariarum axillis (et supra axillis) modice setosa pilis simplicibus 1–3 mm longis persistentibus. Panícula 6–9.5 cm multiflora; flores 5-meri; calycis tubus 0.25 mm altus, lobis interioribus 0.5 longis, dentibus exterioribus crassis inframarginalibus. Stamina in dimensionibus subisomorphica glabra, antherarum thecae 1.5–1.75 mm oblongae latae 4-porosae, connectivo prolongato dorsaliter inconspicue hebeti-dentato. Ovarium 3-loculare et $\frac{1}{2}$ inferum apice glabro.

Tree 6–15 m tall. Uppermost cauline internodes quadrate becoming rounded-quadrate with age, the uppermost branchlets, vegetative buds, young leaves and petioles, inflorescence branches, and bracteoles densely covered with a rusty brown indument of asperous-headed, dendritic hairs. Leaves of a pair equal or slightly unequal in size, petioles 1.1–4.1 cm long, blades coriaceous when dry, $4.5\text{--}12 \times 1.9\text{--}3.8$ cm, oblong-ovate, apex caudate-acuminate to attenuate, base rounded, margin callose-serrulate, adaxially glabrous and somewhat bullate-reticulate, abaxially scattered asperous-lepidote on the actual surface but copiously covered with rusty brown dendritic or asperous-headed hairs on the elevated primary veins and moderately covered with simple spreading hairs (1–3 mm long) where the primary veins diverge at the blade base and commonly extending for

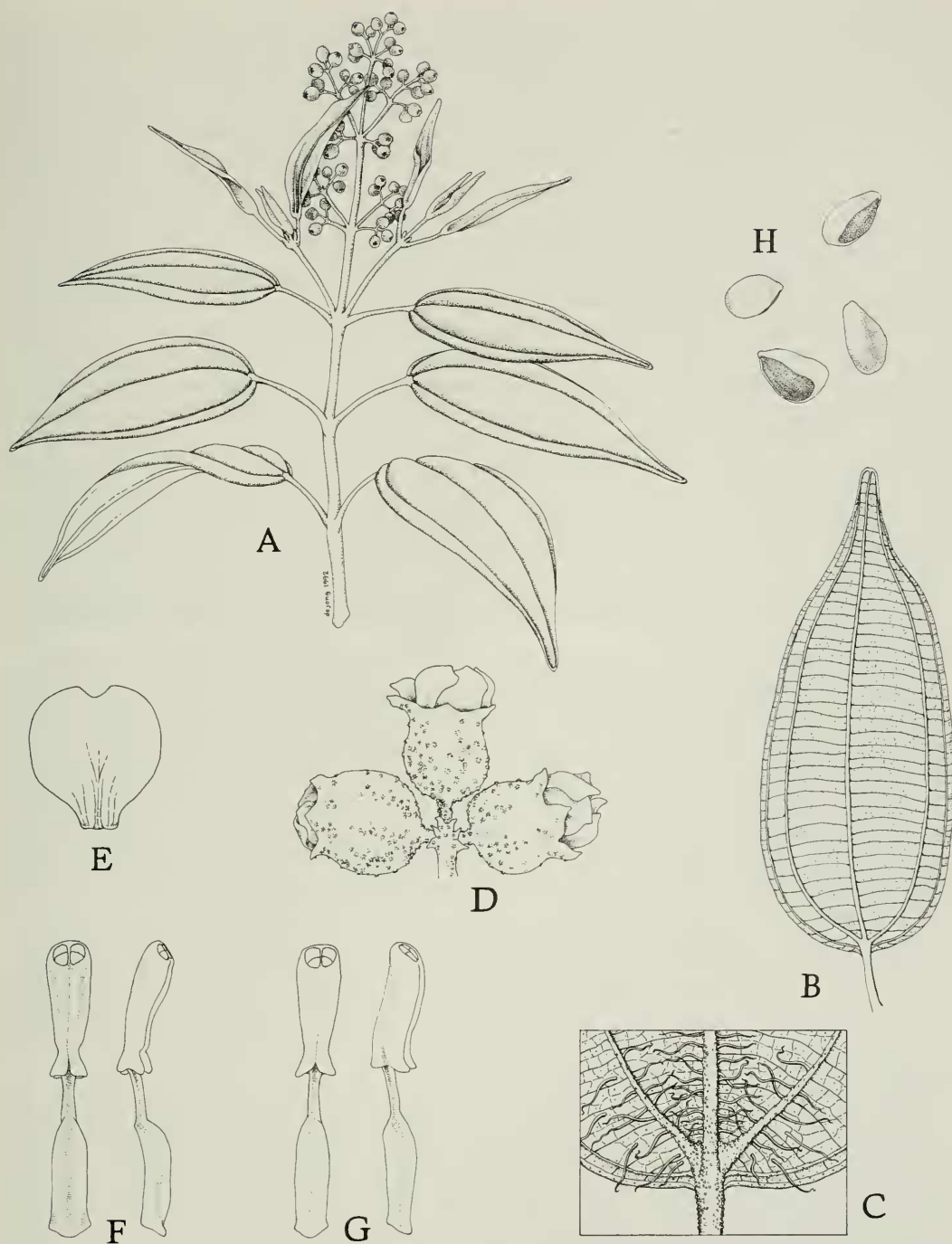


FIGURE 8 *Miconia talamancensis* Almeda. A, habit, $\times 1$; B, representative leaf (abaxial surface), $\times 1$; C, enlargement showing pubescence detail at a leaf base (abaxial surface); D, ultimate dichasial inflorescence unit showing flower buds, $\times 6$; E, petal (adaxial surface), $\times 9$; F, antepetalous stamen, ventral view (left) and profile view (right), \times ca. 11; G, antesepalous stamen, ventral view (left) and profile view (right), \times ca. 11; H, seeds, \times ca. 18. (A–H from the holotype.)

some distance up the blade along the primaries (especially the median vein), 5-nerved (the outermost pair often inconspicuous), the transverse secondary veins elevated and spaced 1.5–4 mm apart at the widest portion of the blade. Inflorescence a terminal multiflowered panicle 6–9.5 cm long, branching 1.5–2.5 cm above the node initiating the inflorescence; bracts of the rachis nodes early deciduous and not seen; bracteoles also early deciduous and rarely seen at anthesis, paired, elliptic-oblong to oblong-obovate, 0.75–1.5 mm long, 0.25–0.5 mm wide (at the widest point). Pedicels 0.5–1.25 mm long. Hypanthia (at anthesis) 2–2.5 mm long to the torus, moderately covered with rusty brown dendritic or asperous-headed hairs that typically do not completely conceal the actual surface. Calyx tube 0.25 mm long, the calyx lobes deltoid to broadly rounded-deltoid, hyaline, 0.5 mm long; exterior calyx teeth 5, bluntly triangular, 0.25 mm long, shorter than and not obscuring the calyx lobes; torus glabrous adaxially. Petals 5, glabrous, white, obovate to \pm suborbicular, rounded and often retuse or emarginate apically, 1.5–2 mm long, 1–1.5 mm wide. Stamens 10, subisomorphic, filaments glabrous, geniculate above the middle, constricted distally about 2/3 of the way up from the base, 2–2.5 mm long; anthers 1.5–1.75 mm long, 0.75 mm wide, white, oblong-obovate, widest above the middle, 4-celled, rounded to subtruncate at the apex and opening by a wide ventrally inclined opening; connective lobulate-thickened dorso-basally and prolonged ventrally below the thecae into two lateral lobes 0.24 mm long. Ovary (at anthesis) $\frac{1}{2}$ -inferior, 3-locular, globose, apex \pm rounded and glabrous at maturity. Style straight, glabrous, 3–3.5 mm long; stigma capitellate. Berry globose, greenish-white becoming blue-black when mature, 5–6 mm in diameter. Seeds ovoid to ellipsoid, 0.5–0.75 mm long, tan, smooth with a dull luster, the lateral raphe extending for much of the seed length.

PHENOLOGY. — Collected in flower from February through July; in fruit during the months of March, June, and September.

DISTRIBUTION. — Locally common in high montane cloud forests and in rocky areas bordering páramo from near Villa Mills to Cerro Kámuk on the Cordillera de Talamanca of Costa Rica southeast to the Volcán Barú region of western Panama at 2900–3350 m (Fig. 5).

PARATYPES. — COSTA RICA. Cartago/San José border: About 3 km W of Villa Mills, 10 Mar. 1981, *Almeda & Nakai* 4832 (CAS, CR); Cordillera de Talamanca, La Georgina, 27 Jul. 1972, *Kesell & Sauer* 5307 (CAS); Limón: Cordillera de Talamanca, SW foot of Cerro Kámuk, 9°16'N, 83°02'30"W, 24 Mar. 1984, *Davidse et al.* 25970 (CAS); Chirripó National Park, N end of Loma Larga, 15 Feb. 1983, *Garwood et al.* 1262 (BM, MO). Puntarenas: Cordillera de Talamanca, across the Panamerican Hwy. from La Georgina, 23 Feb. 1991, *Almeda et al.* 6785 (CAS, CR, MEXU, MO). San José: Along Interamerican Hwy. ca. 25 km SW of road to La Cima and 4.1 km NW of Cerro Asunción, 9°36'N, 83°46'W, 11 Sep. 1979, *Stevens* 14269 (CAS). PANAMA. Chiriquí: 12 miles above Boquete on road to Volcán Barú, 18 May 1976, *Croat* 34886 (CAS); La Nivera, below summit of El Barú, 14 Mar. 1979, *D'Arcy & Hammel* 12467 (CAS); top of high ridge N of summit of Volcán Cerro Pavón, 15 Mar. 1979, *Hammel & D'Arcy* 6436 (CAS); Volcán Barú, along road to summit, 8°45'N, 82°30'W, 10 June 1986, *McPherson* 9487 (CAS).

DISCUSSION. — *Miconia talamancensis* has white, obovate to suborbicular petals; white, 4-celled anther thecae; ovoid to ellipsoid seeds with a dull luster; and oblong-ovate leaves with a concentration of simple spreading hairs where the primary veins diverge from one another at the abaxial base of the blade. In all of these characters, *M. talamancensis* is very similar to *M. schnellii* Wurdack, and there is no doubt that they are closely related. These two species differ in features of the indument, exterior calyx teeth, and anther details. In *M. talamancensis* the uppermost internodes, young leaves, petioles, and inflorescences are densely covered with a rusty brown indument of asperous-headed or dendritic hairs that are most reminiscent of the dendritic hairs with short arms illustrated by Wurdack (1986:64). *Miconia talamancensis* also has exterior calyx teeth that do not exceed or obscure the calyx lobes, and the septum separating the four anther cells does not conspicuously protrude beyond the anther apex. In *M. schnellii* the upper internodes and inflorescence branches are completely glabrous,

the calyx teeth exceed and obscure the calyx lobes, and the septum of the anther thecae protrudes beyond the anther apex.

In most collections of *M. talamancensis* the simple hairs at the abaxial leaf base commonly extend for some distance up the blade along the median vein. I have never observed this kind of pubescence distribution in any population or herbarium collection of *M. schnellii*. I have found both of these species growing side by side on the Cordillera de Talamanca in Costa Rica with no breakdown or intermediacy in the character differences noted above.

Although *M. talamancensis* and *M. schnellii* have overlapping geographic and elevational ranges, there are some modal differences worthy of note. The latter grows on Costa Rica's Cordillera de Talamanca and on the slopes of Volcán Irazú and Volcán Turrialba at elevations of 1,980–3,200 m. In Costa Rica, *M. talamancensis* occurs only on the Cordillera de Talamanca with populations extending southeast to the Volcán Barú region of Panama. All collections of this species have been made at 2,900–3,350 m.

ETYMOLOGY. — The specific epithet is derived from Cordillera de Talamanca, a plutonic uplift dominating the mountainous backbone of Costa Rica, where many of the collections of this species have been made.

***Miconia vestita* Almeda, sp. nov.**

Fig. 9

TYPE.—COSTA RICA. San José: Ridgetop due E of Finca Chacón near San Gerardo de Dota, elev. 2500 m, 9 Mar. 1995, *Almeda* 7399 (holotype: CAS!; isotype: CR!).

Section *Cremanium*. Arbor parva 2–5 m. Ramuli teretes sicut petioli foliorum venae primariae subtus inflorescentiaque pilis stipitato-stellatis erectis dense vel modice armati et pilis laevibus glanduliferis sparse intermixtis. Lamina 8.7–14.4 × 4–6.9 cm elliptico-ovata 5–7-nervata, supra glabra, subtus in venis secundariis tertiariisque pilis stipitato-stellatis modice puberuli. Panicula 9–12 cm longa multiflora; flores 5-meri; calycis tubus 0.25 mm latus, lobis interioribus 0.5–1 mm longis oblongo-ovatis, dentibus exterioribus minutis inconspicuis inframarginalibus. Stamina isomorphica glabra, antherarum thecae 1–1.5 × 0.25 mm oblongae poro ventraliter inclinato, connectivo dorsaliter ca. 0.25 mm bilobulato. Ovarium 3-loculare et 2/3 inferum apicem versus sparsiuscule glandulis vel paullulo stellatis armatum.

Small openly branched tree 2–5 m tall. Uppermost cauline internodes and inflorescence rachis copiously covered with a rusty brown indument of dendritic and penicillate-stellate hairs (0.5 mm long) intermixed with smooth spreading glandular hairs (mostly 1.5 mm long). Leaves of a pair mostly equal in size; petioles 2.5–3.3 cm long; blades subcoriaceous when dry, 8.7–14.4 × 4–6.9 cm, elliptic to elliptic-ovate, apex acuminate to cuspidate, base obtuse to rounded, margin inconspicuously serrulate, 5–7-nerved, the transverse secondaries elevated and spaced 2–4 mm apart at the widest portion of the blade, adaxially glabrous or sparsely and irregularly beset with dendritic or stipitate-stellate hairs in the channels created by the impressed primary veins, abaxially beset with a dense to moderate cover of rusty colored dendritic and penicillate-stellate hairs on the elevated primary veins and on the prominulous network of transverse secondary and higher order veins. Inflorescence terminal, 9–12 cm long, paniculiform with ultimate branchlets terminating in simple dichasia; bracts of rachis nodes paired judging from nodal scars but evidently early deciduous and not seen, bracteoles early- or tardily-deciduous, oblong to narrowly oblanceolate, 2–2.5–3 mm long, 0.5 mm wide, glabrous adaxially, moderately to copiously stipitate-stellate abaxially. Pedicels 0.25–0.5 mm long. Hypanthia (at anthesis) 2.5–3 mm long to the torus, moderately to sparsely covered with stellate and stipitate-stellate hairs that are sometimes intermixed with a few spreading glan-

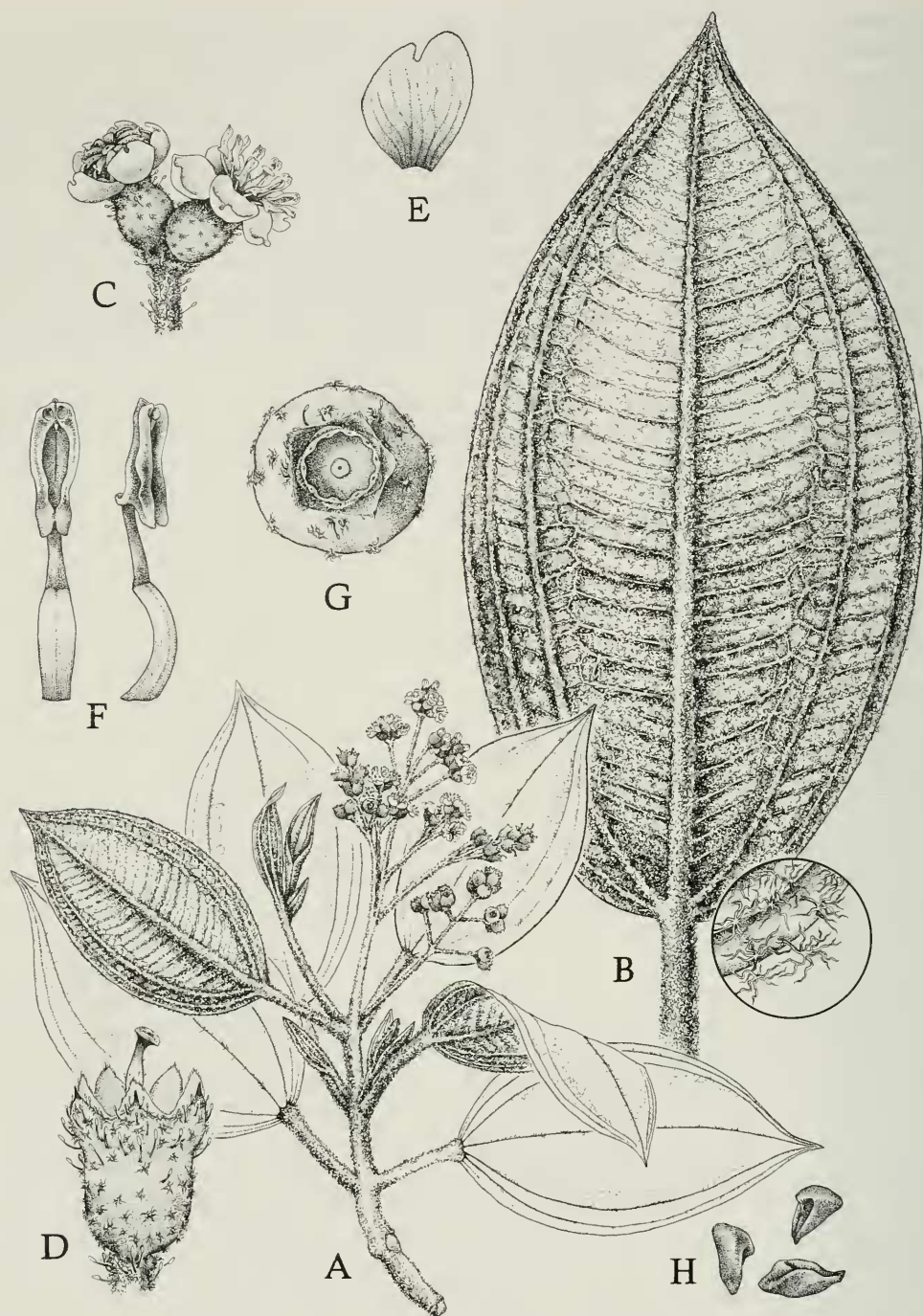


FIGURE 9. *Miconia vestita* Almeda. A, habit, \times ca. $\frac{1}{2}$; B, representative leaf (abaxial surface), with enlargement of pubescence detail, \times 1; C, open flowers showing posture of petals and stamens, \times ca. 4; D, hypanthium in profile view with petals and androecium removed, \times ca. 7; E, petal, \times 10; F, stamens, ventral view (left) and partial profile view (right), \times ca. 17; G, berry as seen from above, \times ca. 6; H, seeds, \times ca. 10. (A-H from the holotype.)

dular hairs. Calyx tube 0.25 mm long, the calyx lobes oblong-ovate, rounded at the apex, abaxially glabrous, adaxially glabrate or sparingly stellate-pubescent at the base and adjacent to the calyx teeth, $0.5-1 \times 0.5-0.75$ mm; exterior teeth 5, subulate to triangular, 0.5 mm long, typically shorter than the calyx lobes but often obscured by an indument of stipitate-stellate and glandular hairs; torus glabrous on the adaxial face. Petals 5, glabrous, white, reflexed, obovate, rounded and emarginate apically, 2–2.5 mm long, 2 mm wide. Stamens 10, isomorphic, reflexed, forming a wide circle around the style and lying close to the expanded petals, filaments geniculate, glabrous, complanate, 2 mm long; anthers 1–1.5 mm long, 0.25 mm wide, white, linear-oblong, \pm truncate apically with a \pm ventrally inclined pore; connective thickened and elevated dorso-basally into a bilobed appendage mostly less than 0.25 mm long and prolonged ventro-basally into a caudiform lobe 0.25 mm long at the base of each anther sac. Ovary (in fruit) $2/3$ inferior, 3-locular, globose, apex \pm rounded and sparingly beset with a few stellate and/or glandular hairs. Style straight, glandular-puberulent, 3.5 mm long, stigma capitate. Berry globose, 3.5–4 mm in diameter. Seeds irregularly angulate-pyramidal, 1 mm long, the testa smooth and \pm vernicose, the lateral raphe extending the entire length of the seed.

PHENOLOGY. — The type, which was collected in early March, is in flower and young fruit.

DISTRIBUTION. — Known only from the type locality on a ridgetop dominated by *Quercus humelioides* Liebm. [*Q. copeyensis* C. H. Muller] near San Gerardo de Dota on the Cordillera de Talamanca, Costa Rica at 2500 m (Fig. 2).

DISCUSSION. — Although *M. vestita* is a typical member of section *Cremanium* in having oblong 2-celled anthers and permanently geniculate filaments above the middle, it does not appear to be particularly close to any of the 209 species currently placed in this section. In foliar size and shape there is a superficial resemblance to *M. acanthocoryne* Wurdack of Colombia, but that species has a rubiginose-furfuraceous indument on upper branches, petioles, and inflorescences, 4-celled anthers with broad pores and 2-locular ovaries.

The most striking feature of *M. vestita* is the indument on the abaxial foliar surface which consists of rusty brown dendritic or penicillate-stellate hairs reminiscent of a miniature forest of trees. The anthers are also noteworthy because the thecae appear thin-walled, somewhat collapsed but not malformed, and largely devoid of pollen. It is possible that all the flowers on the two individuals that I encountered in the field had been relieved of their pollen by buzzing bees, but it is also possible that I collected functionally pistillate individuals of a dioecious species. Non-functional stamens are produced on the pistillate flowers of other dioecious species of *Miconia*, all of which belong to section *Cremanium* and occur at high elevations. This will require further study when additional populations of *M. vestita* are located.

The berry measurements given in the species description are based on fruits that are not yet fully mature. They are sure to increase somewhat when ripened fruits are collected.

ETYMOLOGY. — The specific epithet is derived from the Latin word *vestitus*, meaning clothed or covered, alluding to the conspicuous hair covering on the abaxial foliar surface.

ACKNOWLEDGMENTS

I thank Robert L. Dressler for augmenting locality information for *Miconia correae* and Mireya D. Correa for bringing several important collections to my attention. Logistical support was provided by the Smithsonian Tropical Research Institute in Panama and the Museo Nacional de Costa Rica and the Instituto Nacional de Biodiversidad in Costa Rica. I am also grateful to the herbaria cited for gifts and/or loans of critical specimens and to the following individuals for preparing the line drawings: Sheva Myers (Figure 1), Ellen del Valle (Figures 2–4), Jenny Speckels (Figures 5 and 7), and Margaret de Jong (Figure 6).

LITERATURE CITED

- ALMEDA, F. 1981. The Mexican and Central American species of *Adelobotrys* (Melastomataceae). Ann. Missouri Bot. Gard. 68:204–212.
- . 1989a. Five new berry-fruited species of Tropical American Melastomataceae. Proc. Calif. Acad. Sci. 46(5):137–150.
- . 1989b. New species and taxonomic notes on Mexican and Central American Melastomataceae. Proc. Calif. Acad. Sci. 46(9):209–220.
- . 1989c. *Tessmannianthus*, an arborescent genus of Melastomataceae new to Panama. Ann. Missouri Bot. Gard. 76:1–6.
- . 1990. New species and new combinations in *Blakea* and *Topobea* (Melastomataceae), with an historical perspective on generic limits in the tribe Blakeeae. Proc. Calif. Acad. Sci. 46(14):299–326.
- COGNIAUX, C. A. 1891. Mélastomacées. In *Monographiae phanerogamarum*. Vol. 7. A. de Candolle and C. de Candolle, eds. G. Masson, Paris. 1256 pp.
- GLEASON, H. A. 1958. Melastomataceae. In *Flora of Panama*, R. E. Woodson, Jr. and R. W. Schery, eds. Ann. Missouri Bot. Gard. 45:203–304.
- LEWIS, W. H. 1971. High floristic endemism in low cloud forests of Panama. *Biotropica* 3:78–80.
- STANDLEY, P. C. AND L. O. WILLIAMS 1950. New plants from Honduras. *Ceiba* 1:38–49.
- WURDACK, J. J. 1986. Atlas of hairs for neotropical Melastomataceae. *Smithsonian Contr. Bot.* 63:1–80